What is claimed is:

1. A method for improving transmission control protocol (TCP) performance of a communication network having a receiver receiving a plurality of packets each having a header including an address and a sequence number, comprising:

(a) identifying a first packet, from the plurality of packets, having a bit error;

(b) marking the first packet as having been received with a bit error;

(c) passing the marked first packet to the software protocol; and

(d) sending, if all packets for a window size are received, a selective acknowledgment indicating the bit error while suppressing duplicate acknowledgments.

2. The method of claim 1, further comprising:

(e) constructing the selective acknowledgment having a plurality of acknowledgment bits, each acknowledgment bit corresponding to packets for the window size, said constructing step (e) being performed before said sending step (d).

3. The method of claim 2, wherein said constructing step including the substeps of:

(i) assigning, for each packet for the window size from the plurality of packets marked in step (b) as received with a bit error, an error value to

a corresponding acknowledgment bit from the plurality of acknowledgment bits; and

(ii) assigning, for each packet for the window size from the plurality of packets not marked in step (b) as received with a bit error, a no-error value to a corresponding acknowledgment bit from the plurality of acknowledgment bits.

4. The method of claim 2, wherein said constructing step including the substeps of:

(i) assigning, for each packet for the window size from the plurality of packets marked in step (b) as received with a bit error, an error value to a corresponding acknowledgment bit from the plurality of acknowledgment bits;

(ii) assigning, for each packet for the window size from the plurality of packets not marked in step (b) as received with a bit error, a no-error value to a corresponding acknowledgment bit from the plurality of acknowledgment bits; and

(iii) assigning, for each packet for the window size not received, the error value to a corresponding acknowledgment bit from the plurality of acknowledgment bits.

5. The method of claim 1, further comprising:

(e) sending, if all packets for a window size are not received, duplicate selective acknowledgments.

6. In a method for controlling transmission performance of a communication network having a base station relaying a plurality of packets each having a payload and a header including an address and a sequence number to a receiver, an improvement comprising:

(a) adding a plurality of error correction bits to each packet header without adding error correction bits to each packet payload.

7. The improvement of claim 6, wherein step (a) is performed at the base station.

8. The improvement of claim 6, further comprising:

(b) identifying a first packet, from the plurality of packets, having a bit error;

(c) determining whether the bit error occurs within the packet header of the first packet; and

(d) correcting the bit error if the bit error is within the packet header of the first packet.

9. The improvement of claim 6, further comprising:

(b) identifying a first packet, from the plurality of packets, having a bit error;

(c) determining whether the bit error occurs within the packet header of the first packet;

(d) correcting the bit error if the bit error is within the packet header of the first packet; and

(e) flushing the first packet if the bit error corrected in said correcting step (d) is within the source address.

10. The improvement of claim 6, further comprising:

(b) identifying a first packet, from the plurality of packets, having a bit error;

(c) determining whether the bit error occurs within the packet header of the first packet;

(d) marking the first packet as received in error if the bit error does not occur within the packet header of the first based on said determining step (c).

11. The improvement of claim 6, further comprising:

(b) identifying a first packet, from the plurality of packets, having a bit error;

(c) determining whether the bit error occurs within the packet header of the first packet;

(d) correcting the bit error if the bit error is within the packet header of the first packet;

(e) flushing the first packet if the bit error corrected in said correcting step (d) is within the source address; and

(f) marking the first packet as received in error if the bit error does not occur within the packet header of the first based on said determining step (c).

12. A system for sending and receiving a plurality packets of information over a lossy link, each packet having a header containing an address and a sequence number, within a communication network, comprising:

a base station connected to the communication network; and

a receiver connected to the base station over the lossy link, said receiver receiving a plurality of packets from said base station, said receiver distinguishing for a first packet from the plurality of packets an error from the group of a non-congestion bit error and a congestion error, said receiver sending when the first packet has non-congestion bit error a selective acknowledgment indicating the first packet being received with non-congestion bit error while suppressing duplicate acknowledgments.

13. The system of claim 12, wherein said base station adds a plurality of error correction bits to each packet header.